



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/188,399	11/06/1998	MARK BODDY	256.029US1	4315

128 7590 05/15/2003

HONEYWELL INTERNATIONAL INC.
101 COLUMBIA ROAD
P O BOX 2245
MORRISTOWN, NJ 07962-2245

EXAMINER

GARLAND, STEVEN R

ART UNIT	PAPER NUMBER
----------	--------------

2125

DATE MAILED: 05/15/2003

16

Please find below and/or attached an Office communication concerning this application or proceeding.

8

Office Action Summary

Application No.

09/188,399

Applicant(s)

BODDY ET AL.

Examiner

Steven R Garland

Art Unit

2125

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19, 27-29 and 32-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-19, 27-29, 32-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-3,5-8,10,11,13-19, 27-29, and 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Goldman et al. article " A Constraint-Based-Scheduler for Batch Manufacturing" (copy supplied by applicant) in view of Tanaka 5,353,229.

Goldman et al. teaches constraint based scheduling using discrete and continuous constraints, determining infeasible schedules, breaking tasks into activities and sub activities, use of deadlines, identifying required resources, dynamic backtracking, schedule modification, use of solver engines, etc. See pages 49-56 and

note figures 1 and 2. Further Goldman teaches resizing and use of constraints in figure A, and pages 52-55.

Goldman however does not specifically teach that the continuous constraints are related to other variables by linear mathematical relationships

Tanaka teaches expressing constraints as linear combinations of variables. See col. 1, lines 39-55.

It would have been obvious to one of ordinary skill in the art to modify Goldman in view of Tanaka and express the continuous constraints by a linear mathematical formula so that the constraints can be accurately related to the variables and also allow ease in computation.

Goldman et al. and Tanaka however do not specifically teach storing the software on a medium.

It would have been obvious to one of ordinary skill in the art to modify Goldman and Tanaka to store the software on a medium as a backup copy in case the system crashes and also allow for easily loading the software on system startup.

In response to applicant's arguments, Goldman teaches the use of both continuous and discrete constraints along with resizing. Note the example given of batch manufacturing in the boxes on the tops of pages 52 and 53 which shows various levels of granularity subject to various constraints (note in addition the breakdown of the general recipe into a site recipe and unit recipes); also note on page 52, middle column in the second full paragraph sub-activities are specifically mentioned. In response to applicant's argument about linear mathematical relationships, the instant

Art Unit: 2125

specification defines the continuous constraints in various manners and also gives specific examples of them as set forth on page 1, lines 15-20; page 7, lines 22-26; page 10, lines 26-27; page 13, lines 9-20; etc. Guidance is given in the instant specification as to the meaning of continuous constraints such as on page 13, lines 19-20, states that "temporal relationships are explicitly included as continuous constraints in the schedule constraint model." and on page 1, lines 16-20 which state in part "A second type of constraint is continuous or dynamic in nature. These types of constraints involve the duration of an activity,..."

4. Claims 1-11, 14, 15, 19, 27-29, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zweben et al. 6,216,109 .

Zweben et al. teaches constraint based scheduling using continuous and discrete constraints, use of a memory to store the software, use of deadlines and start and end times, splitting tasks into subtasks, identifying required resources to perform a task, resource balancing, identifying infeasibilities, schedule modification, etc. See the abstract, figures, col. 1, lines 39-65; col. 2, lines 1-6; col. 9, lines 30-47; col. 14, lines 6-42; col. 15, line 33 to col. 16, line 61; col. 25, line 45 to col. 26, line 58; and the claims.

Zweben however does not specifically teach that the continuous constraints are related to other variables by linear mathematical relationships

Tanaka teaches expressing constraints as linear combinations of variables. See col. 1, lines 39-55.

It would have been obvious to one of ordinary skill in the art to modify Zweben in view of Tanaka and express the continuous constraints by a linear mathematical

formula so that the constraints can be accurately related to the variables and also allow ease in computation.

. In response to applicant's argument about linear mathematical relationships, the instant specification defines the continuous constraints in various manners and also gives specific examples of them as set forth on page 1, lines 15-20; page 7, lines 22-26; page 10, lines 26-27; page 13, lines 9-20; etc. Note that page 13, lines 19-20, states that "temporal relationships are explicitly included as continuous constraints in the schedule constraint model." and on page 1, lines 16-20 which state in part "A second type of constraint is continuous or dynamic in nature. These types of constraints involve the duration of an activity,...". In regards to the splitting aspect, applicant should note col. 16, lines 4-61.

5. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

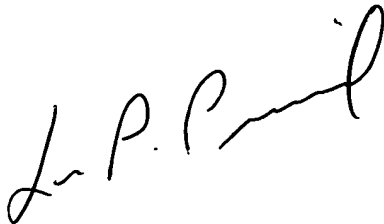
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven R Garland whose telephone number is 703-305-9759. The examiner can normally be reached on Monday –Thursday from 6:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo Picard, can be reached on (703) 308-0538. The fax phone number for the organization where this application or proceeding is assigned is 703-746-7239; for after final faxes 703-308-7238; and for non official faxes 703-746-7240.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-3900.



SRG
Steven R Garland
Examiner
Art Unit 2125

LEO PICARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100